

AMSR-E Team Leader Science Computing Facility

Earth System Science Center

UAH



AMSR-E TLSCF

- Overview of TLSCF tasks
- TLSCF data flow
- Science software procedures
- Delivered Algorithm Packages
- Science software integration & test status
- Reprocessing
- Science software current versions
- File naming convention
- Issues
- Coming attractions

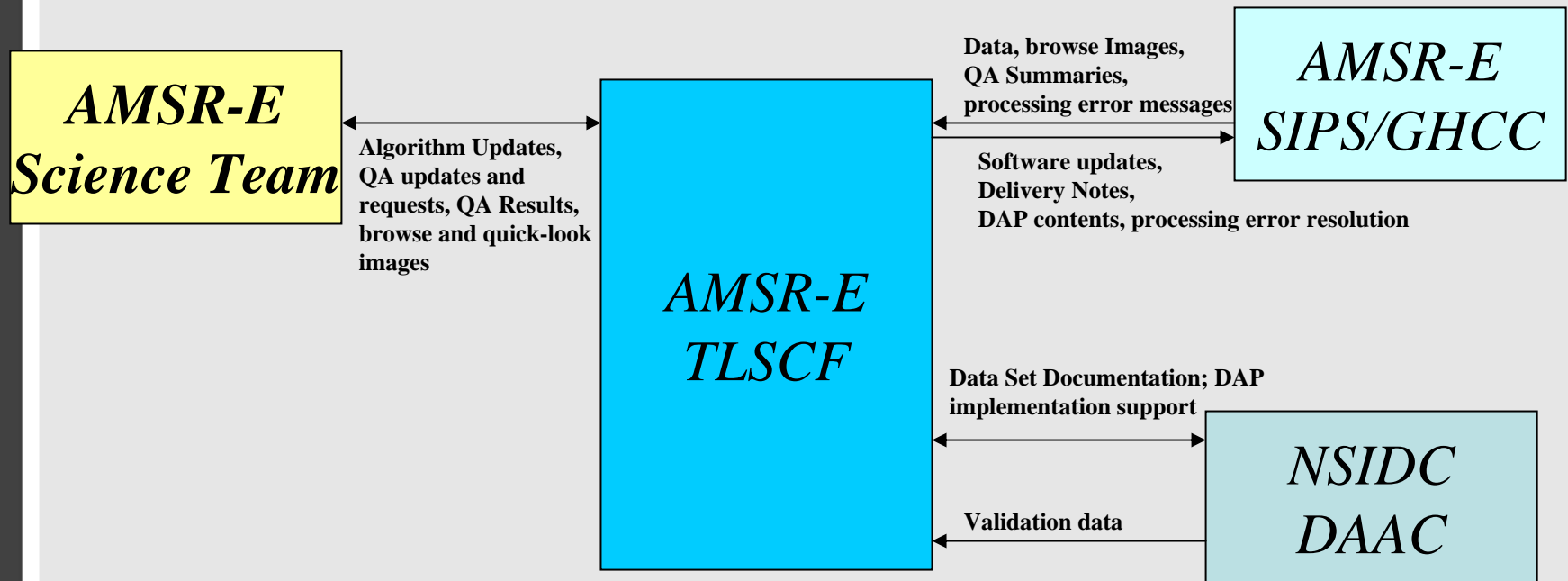
Overview of TLSCF Tasks

- Integrate and test science software
- Deliver operational software and documentation to SIPS
- Maintain metadata and QA software
- Maintain AMSR-E Science Team Web page
- Respond to science software anomalies that occur during processing
- Respond to specific QA requests from the science team

Overview of TLSCF Tasks (2)

- Support NSIDC
 - Documentation updates
 - User questions
 - DAP implementation
- Maintain the Data Management Plan and Quality Assessment Plan

Data Flow for the TLSCF



TLSCF Science Software Procedures

- Science software deliveries from science team members to the TLSCF are required to
 - be updated from the latest operational software package
 - run as stand-alone processes on the SCF hardware
 - meet ECS requirements concerning format (HDF-EOS)
 - be accompanied by delivery notes documenting science software changes
 - be accompanied by test input/output data

TLSCF Science Software Procedures (2)

- At the TLSCF
 - all science software is compiled and run by a TLSCF software team member and the output from the run is compared to output supplied by the science algorithm team
 - all science software is modified and tested for conformity in the operational environment
 - metadata and QA routines are designed (updated) and implemented as needed

TLSCF Science Software Procedures (3)

- All software deliveries to the SIPS
 - include science algorithm routines, metadata creation routines, and operational QA routines
 - are accompanied by delivery notes documenting hardware configurations, OS versions, compiler versions, known limitations, required run times, required inputs, and sample output files
- At the SIPS
 - Integration with processing automation scripts (e.g. pass, daily, weekly, monthly)
 - Comparison with sample output files

Delivered Algorithm Packages

- A DAP is a package containing software and documentation sufficient to allow a user to recreate the associated standard product
- DAP Contents
 - Science software package delivered to SIPS by TLSCF
 - Science software
 - Metadata software
 - QA software
 - Ancillary files
 - Checksum file
 - Delivery notes
 - README

Delivered Algorithm Packages (2)

- 1 DAP per PGE
- DAP version = file version
- DAP created by TLSCF and delivered to the SIPS
- DAP used by SIPS to install science software
- DAP delivered to NSIDC by SIPS
- Available to users from NSIDC

Delivered Algorithm Packages (3)

- The DAP contains the latest information on the science software and data product
 - Description of the changes to the software, including new requirements
 - Known issues associated with the release
 - File naming convention
 - Input and Output file descriptions
 - Operating system, compilers, and HDF libraries
 - List of all routines and ancillary files; identifying the ones that have changed
 - Contacts
 - Operating instructions

Science Software Integration & Test Status

Data Product	Operational as of 3 Aug 2004	Current Operational Version	Pending
Level 2A TB's	B01	B05	B06 (10/2005)
Level 2 Ocean	B01	B03	
Level 2 Land	B01	B04	
Level 2 Rain	B02	B07	
Level 3 Sea Ice	B02	B05	
Level 3 Ocean	B01	B02	
Level 3 Land	B01	B03	
Level 3 Snow	B02	B04	B05 (10/2005)
Level 3 Rain	B02	B04	

Reprocessing

- Reprocessing of all products at the SIPS from the beginning of the mission
 - No earlier than October 2005
 - Will use current operational algorithm versions except
 - L2A
 - New version expected October 2005
 - Calibration update; RangeEndingTime rounding error fix
 - L3 Daily, 5-day, and Monthly Snow
 - New version operational by October 1, 2005
 - Algorithm updates accepted on as-needed basis
 - QA updates as TLSCF improves QA routines
 - Metadata updates not expected
 - HDF version 4.1r5; HDF-EOS version 2.13; IRIX version 6.5

Science Software Current Versions

- L2A version B05
 - Based on JAXA Version 2 L1A files
 - Uses improved geo-location
 - Earth incidence angle now 2 bytes
 - Augmented the Scan_Quality_Flag with a spin rate flag and a flag indicating when observations are not all on the earth
 - Added the geostationary satellite glint angle parameter
 - Added the interpolation flag included in the Level 1A file; used by JAXA to indicate contamination of the cold mirror by the moon or by RFI
 - Position-in-orbit parameter is now an 8 byte floating point

Science Software Current Versions (2)

- L2A version B05 (continued)
 - Modified the names of several data fields
 - Made minor modifications to read Version 2 of the JAXA Level 1A data
 - Uses an updated calibration method
 - Added global attribute called PGE_Version; PGE_Version is no longer a swath attribute
 - Interchanged indices of Rx_Offset/Gain_Count in internal processing are corrected
 - Accommodated the loss of the 89A channels by allowing resampling of 89B channels despite the absence of 89A
 - Began setting the quality flags for the resampled channels

Science Software Current Versions (3)

- L2A version B06
 - Final calibration
 - Correction to rounding error in the RangeEndingTime metadata element
- L2B Ocean Products Version B03
 - Implemented a salinity correction
 - Uses a more sophisticated post hoc correction for anomalies
 - RFI identification and flagging
 - Updated L2A reader to accommodate version 5 L2A format
 - Uses full swath
 - Added a flag to the ocean_products_quality_flag array to identify geostationary satellite RFI

Science Software Current Versions (4)

- L2B Ocean Products Version B03 (continued)
 - Added a flag to the ocean_products_quality_flag array to identify geostationary satellite RFI
 - Detects sea ice using the NASA Team Sea Ice Algorithm
 - Redefined default values in arrays to eliminate ambiguity
 - Added units for all fields
 - Updated quality flags
- L2B Land B04
 - Updated L2A reader for version 5 L2A format
 - Uses full swath
 - Minor modification to the soil moisture QC within the science code

Science Software Current Versions (5)

- L2B Land B04 (continued)
 - Uses the difference of the 10.6 GHz vertical and the 18.0 GHz vertical as the only criterion for defining RFI. If the difference is greater than or equal to 5.0, then the pixel is flagged as contaminated with RFI.
 - Upgraded the Surface Type classification found in the product to indicate combinations of surface types.
- L2B Rain B07
 - Updated L2A reader for version 5 L2A format
 - Improved low coastal rain rate retrievals; Modified cold season coastal rainfall estimates to eliminate false rain signatures

Science Software Current Versions (6)

- L2B Rain B07 (continued)
 - Minor source code updates to conform to standard FORTRAN
 - Added scale factors to the product
 - Removed "0" rainfall values above 70° N and below 70° S
 - Corrected for failure of the 89 GHz A scan
 - Modify the algorithm to retrieve rainfall only for the center 392 pixels
 - Eliminated rainfall retrievals over ocean when the sun glint is greater than 20°
 - changed Aral Sea surface type to "coast"

Science Software Current Versions (7)

- L3 Daily, Weekly, & Monthly Ocean B02
 - Uses full swath
 - Excludes observations which meet any of the following conditions:
1) the TB ice flag and the climate ice flag indicate the presence of ice, 2) contamination by sun glint or RFI, 3) L2B ocean parameter(s) out of bounds, 4) suspect L2B ocean quality flags
 - Added units for all parameters
- L3 Daily, 5-day, & Monthly Snow B04
 - B05 to be delivered to the SIPS by October 1, 2005 (documentation received 09-08-2005)
 - Updated ancillary files
 - Uses satellite attitude information in algorithm

Science Software Current Versions (8)

- L3 Daily, 5-day, & Monthly Snow B04 (continued)
 - Eliminated checks for rain, cold rain, and wet snow
 - Added Brightness Temperature limit checks
 - Eliminated explicit definition of "xdim" and "ydim" in grid setup
 - Uses full scan
 - Reduced snow water equivalent by a factor of two
 - *This science software does not currently use the TLSCF L2A reader*
- L3 Sea Ice Products B05
 - Updated L2A reader for version 5 L2A format
 - Calculates Southern Hemisphere parameters based on the NASA Team 2 algorithm instead of the Bootstrap algorithm

Science Software Current Versions (9)

- L3 Sea Ice Products B05 (continued)
 - Modified difference arrays in Southern Hemisphere; all difference arrays now reflect the difference in the Bootstrap algorithm from the stored NASA Team 2 algorithm.
 - Updated error reporting
 - Update local only Global Hydrology and Climate Center Science Investigator-led Processing System (GHCC-SIPS) HDF-EOS version 2.13 grid API (GDapi.c) to store the eccentricity squared projection parameter to 9 decimal places in the structural metadata.
 - Began using 37 GHz Horizontal channel in the sea ice concentration algorithm
 - Updated the emissivity values

Science Software Current Versions (10)

- L3 Sea Ice Products B05 (continued)
 - Updated the bootstrap sea ice concentration algorithm significantly
 - Added Brightness Temperature threshold checks
 - Modified Brightness Temperature upper limit value from 350 K to 320 K
 - Uses full swath
 - Update emissivity values and add code to determine emissivity based on date
 - Update intercept parameters used in line fitting routines
 - Add the 37 GHz Horizontal channel to the argument list for the "s1" Southern Hemisphere routines
 - Eliminate overlapping scans between passes

Science Software Current Versions (11)

- L3 Sea Ice Products B05 (continued)
 - Add the 37 GHz Horizontal channel to the argument list for the "s1" Southern Hemisphere routines
 - Eliminate overlapping scans between passes
 - Update the weather filter parameters
 - Update the Brightness Temperature tie points for ice concentration
 - Change the sphere code from "19" to "-1" to enable use of program-defined projection parameters
- L3 Land B03
 - Correct grid projection parameters
 - Use full swath

Science Software Current Versions (12)

- L3 Land B03 (continued)
 - Combine Surface Type and Inversion QC Flag 1 (from level 2 product) to form the Inversion QC Flag field.
 - Changed grid type from BCEA to CEA (NSIDC may correct the B02)
- L3 Monthly Rain B04
 - Update L2A reader for version 5 L2A
 - Lower the upper limit for acceptable Tb's over ocean
 - Correct an indexing error in the L2A reader
 - Correct a subscript error in the program which reads the land mask

Science Software Current Versions (13)

- L3 Monthly Rain B04 (continued)
 - Modify the L2B rain rate product reader so that the full swath width of the L2B product can be used
 - Prevent any missing data from being counted in the L2B histogram

AMSR-E File Naming Conventions

AMSR-E Short Name	File Naming Convention
AE_L2A	AMSR_E_L2A_BrightnessTemperatures_X##_yyyymmddhhmm.hdf
AE_Ocean	AMSR_E_L2_Ocean_X##_yyyymmddhhmm.hdf
AE_Land	AMSR_E_L2_Land_X##_yyyymmddhhmm.hdf
AE_Rain	AMSR_E_L2_Rain_X##_yyyymmddhhmm.hdf
AE_RnGd	AMSR_E_L3_RainGrid_X##_yyyymmddhhmm.hdf
AE_DyOcn	AMSR_E_L3_DailyOcean_X##_yyyymmddhhmm.hdf
AE_WkOcn	AMSR_E_L3_WeeklyOcean_X##_yyyymmddhhmm.hdf
AE_MoOcn	AMSR_E_L3_MonthlyOcean_X##_yyyymmddhhmm.hdf
AE_DySno	AMSR_E_L3_DailySnow_X##_yyyymmddhhmm.hdf
AE_5DSno	AMSR_E_L3_5DaySnow_X##_yyyymmddhhmm.hdf
AE_MoSno	AMSR_E_L3_MonthlySnow_X##_yyyymmddhhmm.hdf
AE_SI6	AMSR_E_L3_Sealce6km_X##_yyyymmddhhmm.hdf
AE_SI12	AMSR_E_L3_Sealce12km_X##_yyyymmddhhmm.hdf
AE_SI25	AMSR_E_L3_Sealce25km_X##_yyyymmddhhmm.hdf
AE_Land3	AMSR_E_L3_DailyLand_X##_yyyymmddhhmm.hdf

where yyyy indicates year, mm month, dd day, hh hour, mm minutes, X is the product maturity indicator, and ## is the version number. All times are associated with the first scan of the granule.

Issues & Topics for Discussion

- Processing system issues
 - Currently tested, delivered, and operational on SGI machines using the IRIX (UNIX) operating system
 - TLSCF (MISTY) and SIPS (ARIEL)
 - Compatibility: TLSCF – SIPS and SIPS - ECS
 - Linux system with IRIX virtual machine has been tested by the SIPS and did not meet requirements
 - Current IRIX version facing end of support
 - New IRIX version available; but not encouraged by salesmen
 - Linux is a possibility
 - If chosen, recommend doing it in the near future while algorithm team members are available
 - Science team resources
 - Porting – who does it? –funding?

Issues & Topics for Discussion (2)

- What is the criteria for “validated” L2A data?
 - When should we expect validated L2A data?
- When should we expect other products to be validated?
- Proposed (Elena) AMSR-E user workshop
 - After October 2005 reprocessing
 - Invite everyone interested in AMSR / AMSR-E data
- Different algorithms for the same product made available by science team members to the public

Coming Attractions

- Reprocessing
- ADEOS II processing
- Updated Data Management Plan
- Updated Quality Assessment Plan
- Browse and quick-look images on the web
- QA Summaries on the web
- Special Requests
 - Support algorithm and validation teams
 - Additional QA information
 - Quick-look images

LUAU! Thursday, September 15, 2005

Reservations Required



- Round Trip Transportation from Hilton: meet at Taupa Tower @ 4:05 pm
- Fresh Flower Lei and Mai Tai Greeting upon Arrival • Arts & Crafts Demonstrations
- Hawaiian Storytelling • Shower of Flowers
- Hukilau on the Beach • Royal Court Procession
- Imu Ceremony • Royal Ali'i Seating
- Four (4) Standard Drink Tickets • Hawaiian Luau Menu •Table Service (Versus Buffet)
- The Paradise Cove Extravaganza Show
- Cost is regularly \$85.00; There are 5 discounts seats available @ \$63.75

- Backup Slides

AMSR-E Level 2 Standard Products

Short Name	Long Name	Volume
AE_L2A	AMSR-E/Aqua L2A Global Swath Spatially-Resampled Brightness Temperatures	2.5 GB/day
AE_Ocean	AMSR-E/ Aqua L2B Global Swath Ocean Products derived from Wentz Algorithm	277 MB/day
AE_Land	AMSR-E/ Aqua L2B Surface Soil Moisture, Ancillary Parm's, & QC EASE_Grids	15 MB/day
AE_Rain	AMSR-E/ Aqua L2B Global Swath Rain Rate/Type GSFC Profiling algorithm	501 MB /day

AMSR-E Level 3 Daily Products

Short Name	Long Name	Volume
AE_DyOcn	AMSR-E/Aqua global ocean Level 3 daily products are on .25 x .25 degree ascending and descending grids. Products are generated using the Level 2B ocean products as input.	15 MB/day
AE_DySno	AMSR-E/Aqua Level 3 daily products are of global snow water equivalent on EASE-Grids.	2 MB/day
AE_SI6	AMSR-E/Aqua Level 3 products at 6.25 km are of 89.0 GHz brightness temperatures on polar stereographic grids. Tb's are daily averages, daily ascending averages, and daily descending averages.	46 MB/day

AMSR-E Level 3 Daily Products (continued)

Short Name	Long Name	Volume
AE_SI12	AMSR-E/Aqua Level 3 products at 12.5 km are of sea ice concentration, snow depth over ice, & 18 - 89.0 GHz Tb's on polar stereo grids. The sea ice con and Tb's are daily averages, daily asc. & desc.	53 MB/day
AE_SI25	AMSR-E/Aqua Level 3 products at 25 km are of sea ice concentration, sea ice temperature, 6.9 - 89.0 GHz Tb's on polar stereographic grids. Sea ice con, sea ice temp, and Tb's are daily averages, daily ascending averages, and daily descending averages.	20 MB/day
AE_Land3	AMSR-E/Aqua Level 3 global daily surface soil moisture with QC parameters (vegetation water content, surface temp), & Tb's are generated on a nominal 25-km equal area earth grid by time-compositing the Level 2B parameters separately for ascending and descending passes.	65 MB/day

AMSR-E Level 3 5-day, Weekly, & Monthly Products

Short Name	Long Name	Volume
AE_5DSno	AMSR-E/Aqua Level 3 5-day product is a 5-day running mean of global snow water equivalent on EASE-Grids.	2 MB/ 5-day
AE_WkOcn	AMSR-E/Aqua global ocean Level 3 weekly products are on .25 x .25 degree ascending and descending grids. Products are generated using the Level 2B ocean products as input.	12 MB/week
AE_MoSno	AMSR-E/Aqua Level 3 product is of monthly global snow water equivalent on EASE-Grids.	2 MB/month
AE_MoOcn	AMSR-E/Aqua global ocean Level 3 monthly products are on .25 x .25 degree ascending and descending grids. Products are generated using the Level 2B ocean products as input.	12 MB/month
AE_RnGd	AMSR-E/Aqua monthly rainfall accumulations are on two 5 x 5 degree grids, separate for land & ocean. The ocean product uses Level 2A brightness temperatures as input; the land product uses GPROF Level 2B rainfall as input.	0.02 MB/month

AMSR-E Browse & Quick-look Images

- Browse Images
 - Archived at NSIDC
 - HDF-EOS raster images (ECS requirement)
 - No larger than 1 MB (ECS requirement)
 - Available via ftp from GHRC SIPS and from AMSR-E web page in .png format
- Quick-look images
 - Aid to quality assessment and validation
 - .png format
 - Available from AMSR-E web site as of March 1, 2004

File Naming Conventions (continued)

- Product Maturity Indicator
 - Valid values are “P”, “B”, and “V” - for preliminary (near real time), beta, and validated, respectively
 - Preliminary products
 - non-standard near real time preliminary data products available at NSIDC through their Web based non-ECS system
 - only available until the corresponding standard products are ingested at NSIDC
 - Beta products use NASDA calibrated data & geolocations
 - Will graduate to “validated (V)” when the science software has been tested and the algorithm validated using the official NASA calibration

File Naming Conventions (continued)

- Version Number
 - Will be updated any time a change is made to any component of the science software
 - Updated by the TLSCF in the PGE and delivered to the SIPS-GHCC as a part of the updated science software for implementation
 - At the same time, new DAP with the same version number will be delivered
 - The user will always know exactly which version of the software was used to create any product and which version of the DAP to request by simply viewing the file name

AMSR-E Metadata

- ECS compliant
- Generated and included in each file
- ODL format
- Written as global attribute
- Routines created and maintained by TLSCF

TLSCF AMSR-E Web Pages

- Location: <http://www.ghcc.msfc.nasa.gov/AMSR>
- Significant updates on data products and file contents now in progress
- “Team only” restricted site
 - Available from Science Team Link
 - User name and password required
 - Latest information on data availability and data access
 - Subsetting request form
 - Open to team use for exchange of information, discussions

Delivered Algorithm Packages (continued)

Product Short Name	DAP Name
AE_L2A	AE_L2A_vv_yyyymmdd_dap.tar
AE_Ocean	AE_Ocean_vv_yyyymmdd_dap.tar
AE_Land	AE_Land_vv_yyyymmdd_dap.tar
AE_Rain	AE_Rain_vv_yyyymmdd_dap.tar
AE_RnGd	AE_RnGd_vv_yyyymmdd_dap.tar
AE_DyOcn, AE_WkOcn, AE_MoOcn	AE_OcGd_vv_yyyymmdd_dap.tar
AE_DySno	AE_DySno_vv_yyyymmdd_dap.tar
AE_5DSno	AE_5DSno_vv_yyyymmdd_dap.tar
AE_MoSno	AE_MoSno_vv_yyyymmdd_dap.tar
AE_SI6, AE_SI12, AE_SI25	AE_Sealce_vv_yyyymmdd_dap.tar
AE_Land3	AE_Land3_vv_yyyymmdd_dap.tar

Where vv is the DAP version number and yyyymmdd is the creation date of the DAP.

AMSR-E Quality Assessment

- Automatic QA
 - Checking of input and intermediate data during creation of the data product
 - Integral part of science algorithm
 - Varies greatly from algorithm to algorithm
 - Quality flags stored in data file

AMSR-E Quality Assessment

- Operational QA
 - Automated QA done immediately following product creation
 - Examination of processing diagnostics (error messages, CPU time)
 - File structure
 - Parameter values
 - Histograms of various parameters
 - Generation of metadata items such as % missing and % out-of-bounds
 - Other items as requested by science team
 - Accomplished through QA software
 - Similar for all algorithms
 - If a product fails operational QA
 - Product is quarantined at SIPS
 - TLSCF notified
 - TLSCF investigates and takes appropriate action (see QA discrepancies)

AMSR-E Quality Assessment

- Science QA
 - Post-processing checks
 - Browse and quick-look image reviews
 - QA summary report reviews
 - Monitoring of long term trends in calibration and production data

QA Summaries

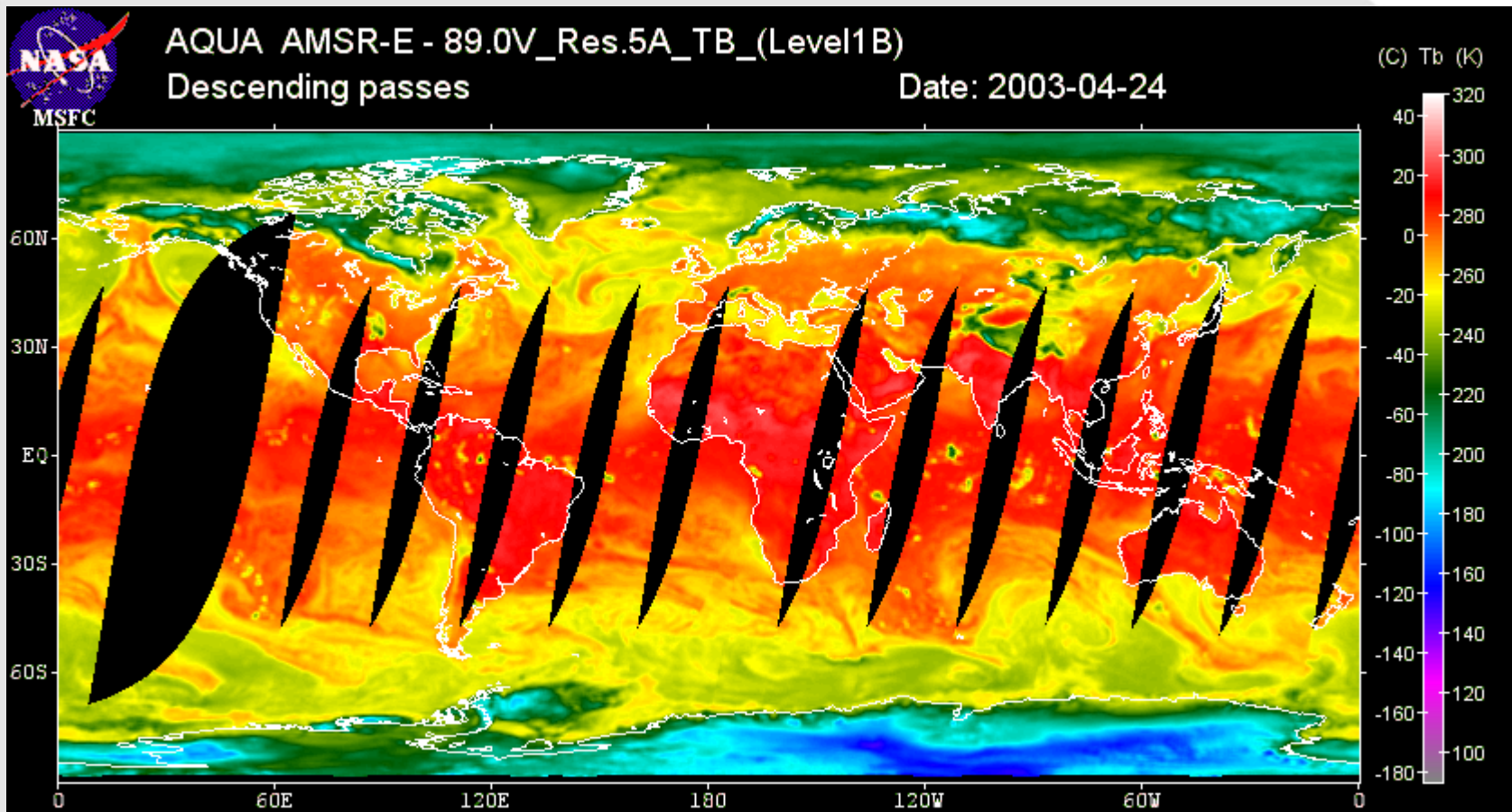
- Generated during processing from the operational QA routines
- Archived at NSIDC
- Soon to be available on the AMSR-E web page
- Routines are created and maintained by the TLSCF
- Content of QA summaries
 - Vary by product
 - Determined by algorithm team and TLSCF
 - Subject to change without notice

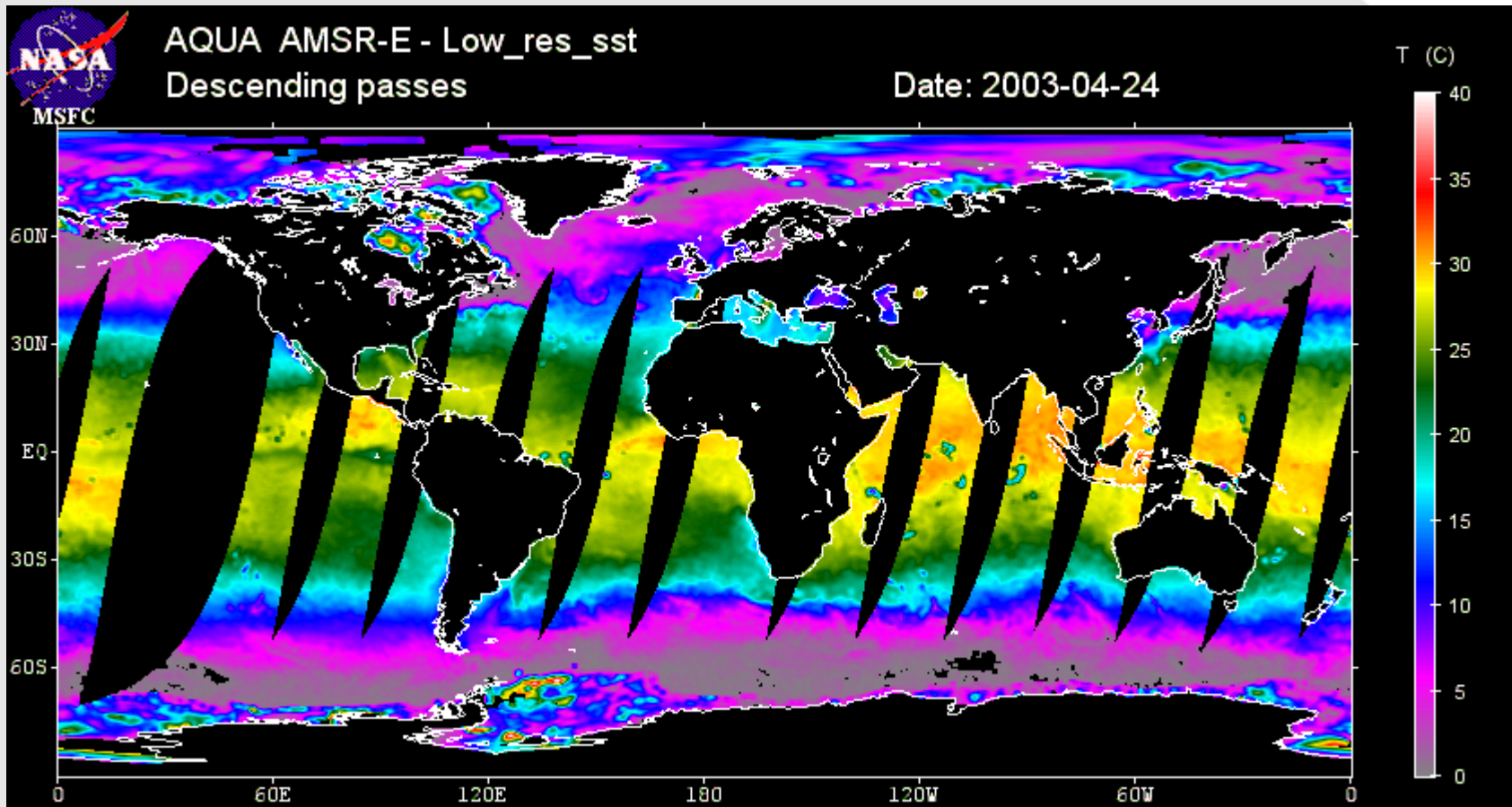
AMSR-E Browse & Quick-look Images (continued)

Product	Parameter(s)	Description
L2A	89 GHz H&V TBs	Daily Ascending; Daily Descending
L2 Ocean	SST, wind speed, water vapor, and cloud liquid water	Daily Ascending; Daily Descending
L2 Land	Soil Moisture	Daily Ascending; Daily Descending
L2 Rain	Rain Rate	Daily Ascending; Daily Descending
L3 Ocean	SST, wind speed, water vapor, and cloud liquid water	All passed combined, Ascending, Descending; Daily, weekly, monthly
L3 Snow	Snow water equivalent	Descending only; Daily, 5-day, Monthly

AMSR-E Browse & Quick-look Images (continued)

Product	Parameter(s)	Description
L3 Land	Soil Moisture	Daily Ascending; Daily Descending
L3 12.5 km Sea Ice	Sea ice concentration, 5-day snow depth	All passes combined; Daily
L3 25.0 km Sea Ice	Sea ice concentration, sea ice temperature	All passes combined; Daily
L3 Rain	Rain Accumulation	Land and Ocean separately; Monthly

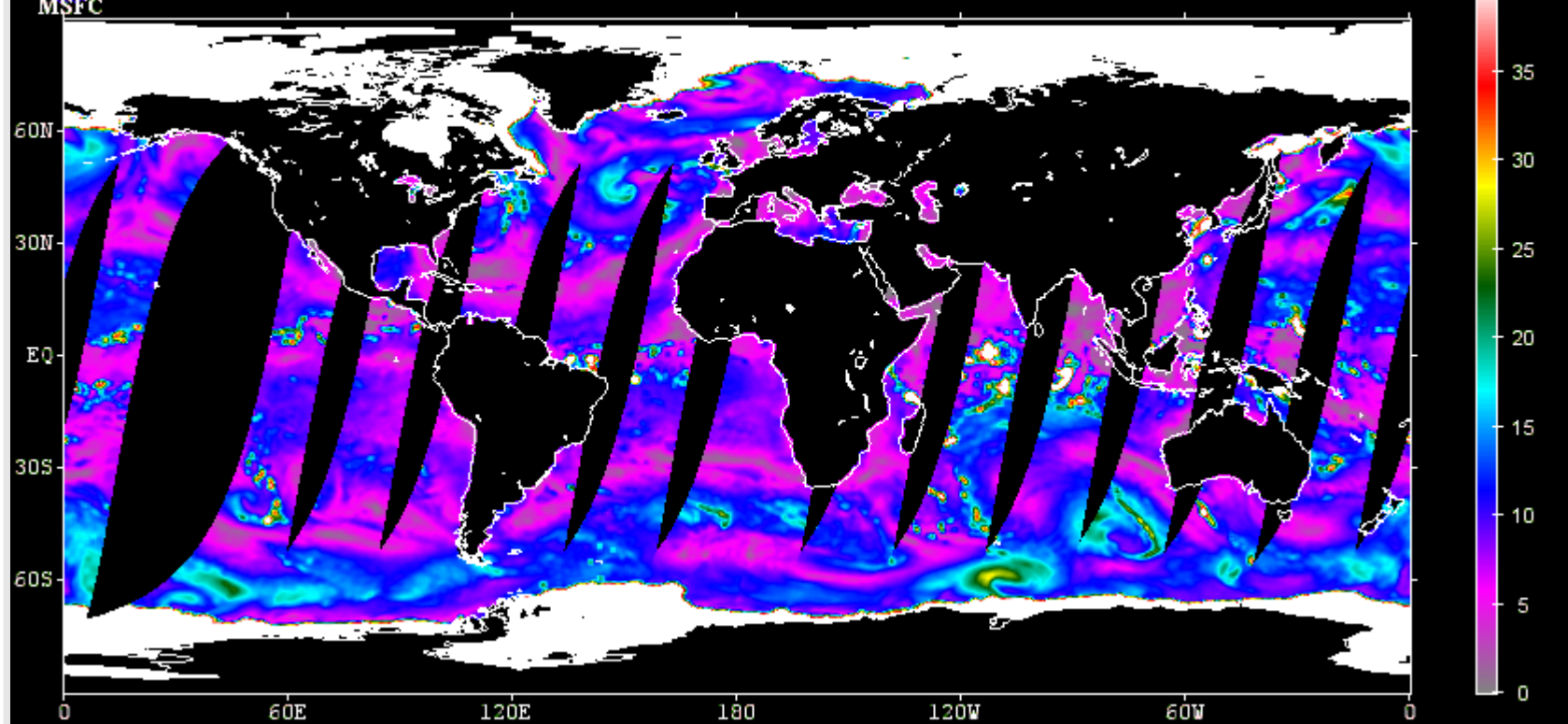






AQUA AMSR-E - Med_res_wind
Descending passes

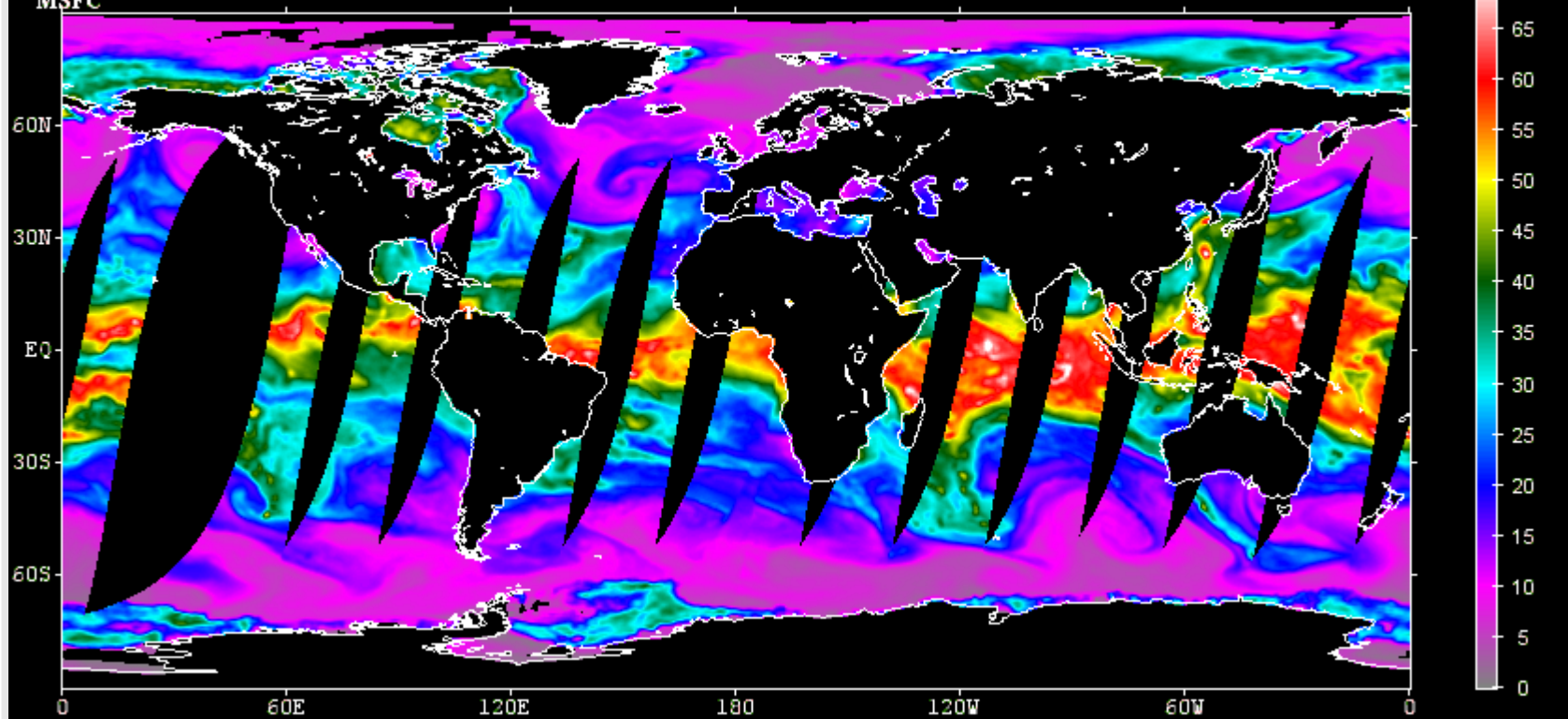
Date: 2003-04-24

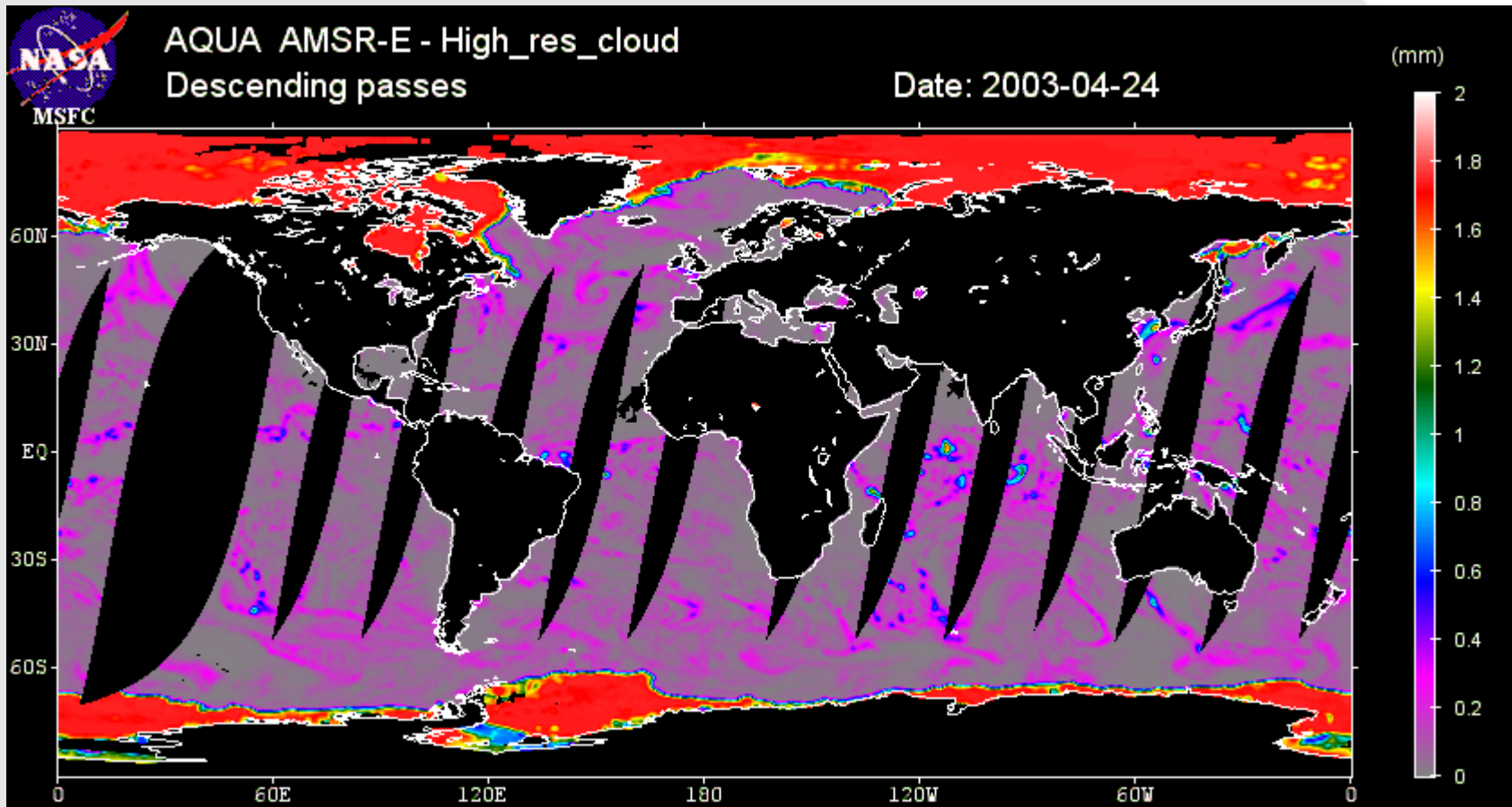




AQUA AMSR-E - Med_res_vapor
Descending passes

Date: 2003-04-24



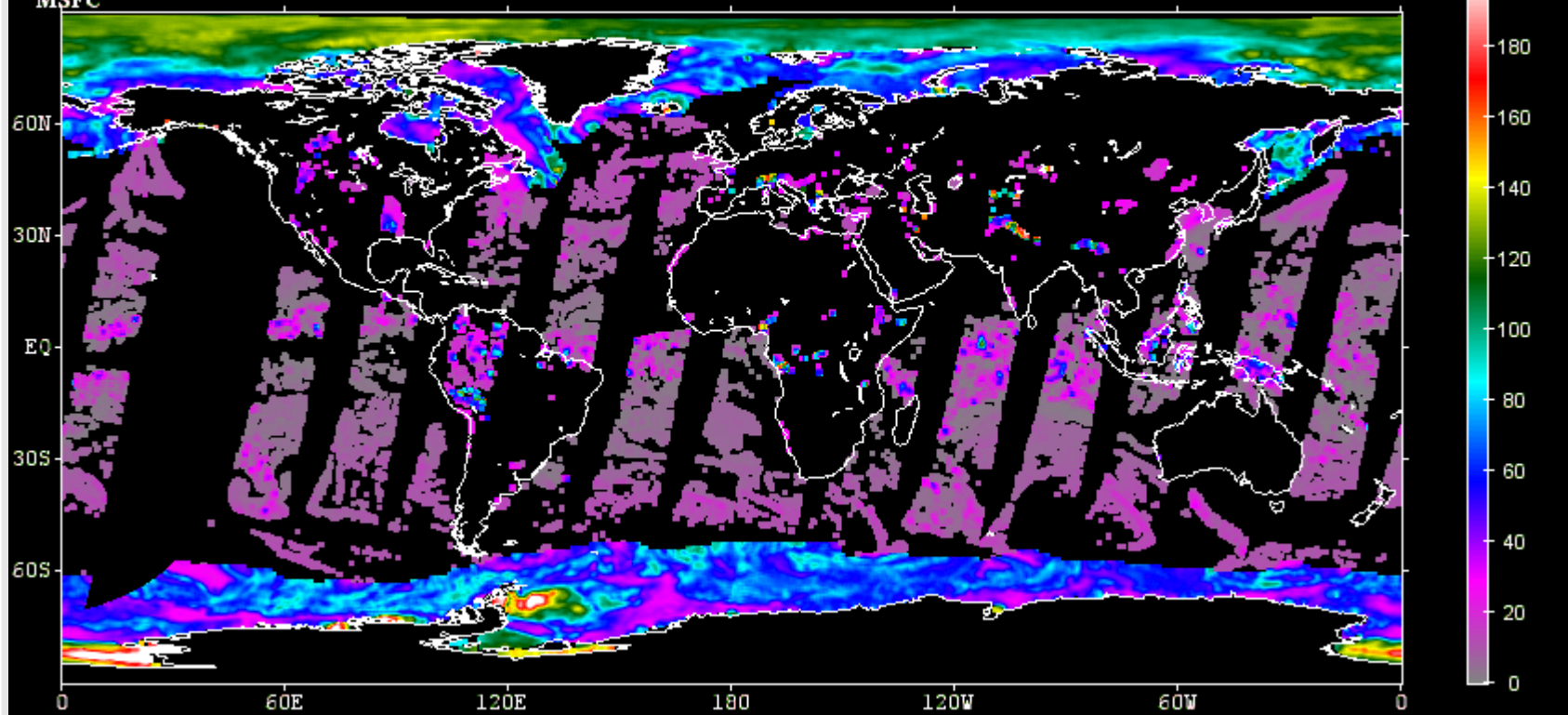




AQUA AMSR-E - Rain Rate
Descending passes

Date: 2003-04-24

(mm/hr)



AMSR-E Level 2 Granule Metadata

Name	Description
LocalGranuleID	Filename
ProductionDateTime	Date and time of granule production
AutomaticQualityFlag	Automated QA indicator of granule
AutomaticQualityFlagExplanation	Definition of the usage of automatic QA flag
OperationalQualityFlag	Processing diagnostics
OperationalQualityFlagExplanation	Definition of the usage of the operational QA flag
ScienceQualityFlag	Science data content
ScienceQualityFlagExplanation	Definition of the usage of the science QA flag
QAPercentMissingData	Percent missing data in the granule
QAPercentOutOfBoundsData	Percent out-of-bounds data in the granule
OrbitModelName	Orbit model used to calculate satellite position vectors
StartOrbitNumber	Start orbit number of granule
StopOrbitNumber	Stop orbit number of granule
EquatorCrossingLongitude	The descending equator crossing longitude of the granule
EquatorCrossingTime	Time of the equator crossing: hh:mm:ss.sssZ
EquatorCrossingDate	YYYY-MM-DD
Short Name	ECS ESDT short name associated with this granule
InputPointer	Input file name

AMSR-E Level 2 Granule Metadata (continued)

Version ID	ESDT VersionID
GringPointLatitude	An array of latitudes and longitudes that define the polygon outlining the granule data swath
GringPointLongitudes	
GringPoint SequenceNo	An array of digits defining the sequence of the latitudes and longitudes used to define the polygon
RangeBeginningDate	YYYY-MM-DD
RangeBeginningTime	Hh:mm:ss.sssZ
RangeEndingDate	YYYY-MM-DD
RangeEndingTime	Hh:mm:ss.sssZ
PGEVersion	Product Generation Executable Version
NominalPassIndex (AMSR-E PSA)	The nominal pass index number for the pass that best describes the spatial location of the granule, where the pass is either the ascending or descending portion of an orbit.
StartPolygonNumber (AMSR-E PSA)	The index number for the first polygon associated with the nominal pass number in the granule.
StopPolygonNumber (AMSR-E PSA)	The index number for the last polygon associated with the nominal pass number in the granule.
Ascending/Descending flag	Indicates if data in the granule were collected during an ascending or descending pass
Measured Parameter	Description of parameter(s) stored in the file

AMSR-E Level 3 Granule Metadata

Name	Description
LocalGranuleID	Filename
ProductionDateTime	Date and time of granule production
AutomaticQualityFlag	Automated QA indicator of granule
AutomaticQualityFlagExplanation	Definition of the usage of automatic QA flag
OperationalQualityFlag	Processing diagnostics
OperationalQualityFlagExplanation	Definition of the usage of the operational QA flag
ScienceQualityFlag	Science data content
ScienceQualityFlagExplanation	Definition of the usage of the science QA flag
QAPercentMissingData	Percent missing data in the granule
QAPercentOutofBoundsData	Percent out-of-bounds data in the granule
Short Name	ECS ESDT short name associated with this granule
InputPointer	Input file name
Version ID	ESDT VersionID
WestBoundingCoordinate	Western point of spatial domain bounding box
NorthBoundingCoordinate	Northern point of spatial domain bounding box
EastBoundingCoordinate	Eastern point of spatial domain bounding box
SouthBoundingCoordinate	Southern point of spatial domain bounding box

AMSR-E Level 3 Granule Metadata (continued)

RangeBeginningDate	YYYY-MM-DD
RangeBeginningTime	Hh:mm:ss.sssZ
RangeEndingDate	YYYY-MM-DD
RangeEndingTime	Hh:mm:ss.sssZ
PGEVersion	Product Generation Executable Version
Measured Parameter	Description of parameter(s) stored in the file

QA Discrepancies

- QA Discrepancies fall into several categories that require different corrective actions:
 - Discrepancy Class 1: The data granule is found to be unacceptable for research use and higher level processing. This may be the result of algorithm failure, corrupted input data, or instrument operation anomalies. Corrective actions include:
 - isolating the cause of failure
 - making necessary revisions to the science software
 - updating the ancillary files
 - reprocessing the affected granules

QA Discrepancies (continued)

- Discrepancy Class 2: The data granule is deemed to be acceptable for research use, but changes in QA procedures and criteria should be made. This may include such modifications to QA as:
 - Change in acceptable limits on parameters
 - Change in display projection parameters
 - Change in error or warning message logging standards

QA Discrepancies (continued)

- Discrepancy Class 3: The data granule is deemed acceptable for research use but changes in instrument operating characteristics are noted.
 - This may indicate the beginning of an instrument problem with possible implications for instrument operations and processing software.
 - The first action taken will be to notify the science team.
 - Subsequent actions may require closer scrutiny of instrument parameters during QA procedures and assessment of the sensitivity of level 2A and higher-level products to the particular changes in instrument performance.

Sample Level 2 Land QA Summary

File name: [AMSR_E_L2_Land_00_200206021305_A.hdf]

File size: 682924

Number of records: 17021

Percent land data: 37

Percent retrievals: 49

Percent retrievals within bounds: 100

-----TB QC Flag-----

-89	-36	-23	-18	-10	-6	0	6	10	18	23	36	89	other
796	0	20	0	60	68	15743	129	9	182	14	0	0	0

-----Surface Type-----

0	10	20	30	40	50	60	70	80	90	other
10	8088	0	72	188	99	12	841	1253	6458	0

-----Soil Moisture-----

In Range	Out of Range	Mean	Std Dev	Min	Max
8923	8098	0.085	0.011	0.030	0.090

Sample Level 2 Land QA Summary (continued)

-----Veg Water Content-----

In Range	Out of Range	Mean	Std Dev	Min	Max
7458	9563	0.88	1.22	0.00	5.00

-----Land Surface Temp-----

In Range	Out of Range	Mean	Std Dev	Min	Max
8361	8660	41.0	14.5	0.0	50.0

-----Inversion QC Flag 1-----

0	10	11	12	20	21	other
8660	8356	5	0	0	0	0

-----Inversion QC Flag 2-----

In Range	Out of Range	Mean	Std Dev	Min	Max
8309	8712	3.4	1.7	1.0	10.0

-----Inversion QC Flag 3-----

In Range	Out of Range	Mean	Std Dev	Min	Max
8361	8660	-20.1	18857.7	-32767.0	32767.0

Passed